PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (WITHDRAWN): An image processing method for recording a plurality of sensed images on a recording medium, and playing back and displaying the images, comprising: the image sensing step of sensing an image; the recording/playback step of recording and playing back the image sensed in the image sensing step; and the display step of playing back and displaying an image sensed at least before a current image, wherein the display step comprises a plurality of display layout modes for displaying the current image sensing signal, and a signal obtained by playing back the image sensed at least before the current image with partial boundary regions thereof overlapping each other.

2 (WITHDRAWN): The method according to claim 1, wherein the image is a still image and/or a moving image.

3 (WITHDRAWN): The method according to claim 1, wherein the plurality of display layout modes of the display step include a first display layout mode in which the images are laid out in two directions, and a second display layout mode in which the images are laid out in one direction.

4 (WITHDRAWN): The method according to claim 3, wherein in the second display layout mode, the images are laid out horizontally and/or vertically.

5 (WITHDRAWN): An image processing apparatus for recording a plurality of sensed images on a recording medium, and playing back and displaying the images, comprising: image sensing means for sensing an image; recording/playback means for recording and playing back the image sensed by said image sensing means; and display means for playing back and displaying an image sensed at least before a current image, wherein said display means comprises a plurality of display layout modes for displaying the current image sensing signal, and a signal obtained by playing back the image sensed at least before the current image with partial boundary regions thereof overlapping each other.

6 (WITHDRAWN): The apparatus according to claim 5, wherein the image is a still image and/or a moving image.

7 (WITHDRAWN): The apparatus according to claim 5, wherein the plurality of display layout modes of said display means include a first display layout mode in which the images are laid out in two directions, and a second display layout mode in which the images are laid out in one direction.

8 (WITHDRAWN): The apparatus according to claim 7, wherein in the second display layout mode, the images are laid out horizontally and/or vertically.

9 (WITHDRAWN): The method according to claim 1, further comprising a function of reversing the layout direction in the one direction.

10 (WITHDRAWN): The apparatus according to claim 5, further comprising a function of

- 3 -

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

reversing the layout direction in the one direction.

11 (WITHDRAWN): The method according to claim 1, wherein the display step comprises a

display layout mode for laying out and displaying the current image sensing signal, and a signal

obtained by playing back the image sensed at least before the current image in two directions

with partial boundary regions thereof overlapping each other, and includes the selection step of

selecting an arbitrary one of display regions laid out in the display layout mode.

12 (WITHDRAWN): The apparatus according to claim 5, wherein said display means comprises

a display layout mode for laying out and displaying the current image sensing signal, and a signal

obtained by playing back the image sensed at least before the current image in two directions

with partial boundary regions thereof overlapping each other, and includes selection means for

selecting an arbitrary one of display regions laid out in the display layout mode.

13 (WITHDRAWN): A storage medium which stores a control program for controlling an image

processing apparatus for recording a plurality of sensed images on a recording medium, and

playing back and displaying the images, said control program having control modules of the steps

of: sensing an image; recording and playing back the sensed image; playing back and displaying

an image sensed at least before a current image; and controlling to execute a plurality of display

layout modes for displaying the current image sensing signal, and a signal obtained by playing

back the image sensed at least before the current image with partial boundary regions thereof

overlapping each other.

787474 v1

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

14 (WITHDRAWN): The medium according to claim 13, wherein the image is a still image and/or a moving image.

15 (WITHDRAWN): The medium according to claim 13, wherein said program further has a control module of the step of controlling to execute a function of reversing the layout direction in the one direction.

16 (WITHDRAWN): The medium according to claim 13, wherein said control program further has a control module of the step of controlling to select an arbitrary one of display regions laid out in a display layout mode for laying out and displaying the current image sensing signal, and a signal obtained by playing back the image sensed at least before the current image in two directions with partial boundary regions thereof overlapping each other.

17 (CURRENTLY AMENDED):   An image processing apparatus having a function of storing a plurality of sensed still images and/or or moving images in storage means, comprising:

image sensing means comprising an image sensing lens which can change an optical system condition;

storage means for storing a plurality of images sensed by said image sensing means in association with each other;

optical system condition change instruction means for outputting an instruction for changing the optical system condition of said image sensing lens; and

control means for controlling to generate an alert and/or inhibit the optical system condition of said image sensing lens from changing finish associating operation of images after a

- 5 -

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

plurality of images, which have been sensed, are associated with each other upon reception of the

instruction for changing the optical system condition of said image sensing lens from said optical

system condition change instruction means after a first one of the plurality of images to be stored

in said storage means in association with each other is sensed and stored.

18 (ORIGINAL): The apparatus according to claim 17, wherein the optical system condition

is a focal length of said image sensing lens.

19 (ORIGINAL): The apparatus according to claim 17, wherein associating the plurality of

images is obtaining a panoramic image by synthesizing the plurality of images.

20 (ORIGINAL): The apparatus according to claim 17, wherein the plurality of images are

images sensed by performing pixel shift, and associating the plurality of images is obtaining a

high-resolution image by synthesizing the plurality of images sensed by performing the pixel

shift.

21 (CURRENTLY AMENDED): An image processing apparatus having a function of storing

a plurality of sensed still images and/or moving images in storage means, comprising:

image sensing means comprising an image sensing lens which can change an optical

system condition; storage means for storing a plurality of images sensed by said image sensing

means in association with each other;

optical system condition change instruction means for outputting an instruction for

changing the optical system condition of said image sensing lens; and

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

The apparatus according to claim 17, wherein said control means ~~for controlling to start~~ starts image sensing of a plurality of new images to be stored in association with each other ~~upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored~~ after finishing of the associating operation of images.

22-25. (CANCELLED)

26 (CURRENTLY AMENDED):   ~~An image processing apparatus having a function of storing a plurality of sensed still images and/or moving images in storage means, comprising:~~

~~image sensing means comprising an image sensing lens which can change an optical system condition; storage means for storing a plurality of images sensed by said image sensing means in association with each other;~~

~~optical system condition change instruction means for outputting an instruction for changing the optical system condition of said image sensing lens; and~~

The apparatus according to claim 17, further comprising initial value control means for controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started.

27-30. (CANCELLED)

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

31 (CURRENTLY AMENDED): A control method for an image processing apparatus which comprises image sensing means comprising an image sensing lens which can change an optical system condition, storage means for storing a plurality of images sensed by said image sensing means in association with each other, and optical system condition change instruction means for outputting an instruction for changing the optical system condition of said image sensing lens, comprising the step of:

~~generating an alert and/or inhibiting the optical system condition of said image sensing lens from changing~~ finishing associating operation of images after a plurality of images, which have been sensed, are associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored.

32 (ORIGINAL): The method according to claim 31, wherein the optical system condition is a focal length of said image sensing lens.

33 (ORIGINAL): The method according to claim 31, wherein associating the plurality of images is obtaining a panoramic image by synthesizing the plurality of images.

34 (ORIGINAL): The method according to claim 31, wherein the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-resolution image by synthesizing the plurality of images sensed by performing the pixel shift.

- 8 -

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

35 (CURRENTLY AMENDED): ~~A control method for an image processing apparatus which comprises image sensing means comprising an image sensing lens which can change an optical system condition, storage means for storing a plurality of images sensed by said image sensing means in association with each other, and optical system condition change instruction means for outputting an instruction for changing the optical system condition of said image sensing lens, comprising the step of:~~

<u>The method according to claim 31, further comprising the step of</u> starting image sensing of a plurality of new images to be stored in association with each other ~~upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored~~ <u>after finishing of the associating operation of images.</u>

36-39. (CANCELLED)

40 (CURRENTLY AMENDED): ~~A control method for an image processing apparatus which comprises image sensing means comprising an image sensing lens which can change an optical system condition, storage means for storing a plurality of images sensed by said image sensing means in association with each other, and optical system condition change instruction means for outputting an instruction for changing the optical system condition of said image sensing lens, comprising the step of:~~

<u>The method according to claim 31, further comprising the step of</u> setting the optical

787474 v1

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started.

41-44. (CANCELLED)

45 (CURRENTLY AMENDED):   A storage medium that stores a control program for controlling an image processing apparatus which comprises image sensing means comprising an image sensing lens which can change an optical system condition, storage means for storing a plurality of images sensed by said image sensing means in association with each other, and optical system condition change instruction means for outputting an instruction for changing the optical system condition of said image sensing lens, said control program comprising a code of the step of:

~~generating an alert and/or inhibiting the optical system condition of said image sensing lens from changing~~ finishing associating operation of images after a plurality of images, which have been sensed, are associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored.

46 (ORIGINAL):   The medium according to claim 45, wherein the optical system condition is a focal length of said image sensing lens.

47 (ORIGINAL):   The medium according to claim 45, wherein associating the plurality of

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

images is obtaining a panoramic image by synthesizing the plurality of images.

48 (ORIGINAL):   The medium according to claim 45, wherein the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-resolution image by synthesizing the plurality of images sensed by performing the pixel shift.

49 (CURRENTLY AMENDED):   ~~A storage medium that stores a control program for controlling an image processing apparatus which comprises image sensing means comprising an image sensing lens which can change an optical system condition, storage means for storing a plurality of images sensed by said image sensing means in association with each other, and optical system condition change instruction means for outputting an instruction for changing the optical system condition of said image sensing lens, said control program comprising a code of the step of:~~

<u>The storage medium according to claim 45, wherein said control program further comprising the step of</u> starting image sensing of a plurality of new images to be stored in association with each other ~~upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored~~ <u>after finishing of the associating operation of images</u>.

50-53. (CANCELLED)

787474 v1

54 (CURRENTLY AMENDED): ~~A storage medium that stores a control program for~~

~~controlling an image processing apparatus which comprises image sensing means comprising an~~

~~image sensing lens which can change an optical system condition, storage means for storing a~~

~~plurality of images sensed by said image sensing means in association with each other, and~~

~~optical system condition change instruction means for outputting an instruction for changing the~~

~~optical system condition of said image sensing lens, said control program comprising a code of~~

~~the step of:~~

<u>The storage medium according to claim 45, wherein said control program further</u>

<u>comprising the step of</u> setting the optical system condition of said image sensing lens at an initial

value before sensing of a first one of the plurality of images to be stored in said storage means in

association with each other is started.

55-58. (CANCELLED)

59 (CURRENTLY AMENDED): The apparatus according to ~~any one of claims 17, 21 and 26~~

<u>claim 17</u>, wherein the change in optical system condition includes free attachment/detachment of

said lens unit.

60 (WITHDRAWN): An image processing apparatus having a function of storing a plurality of

sensed still images and/or moving images in storage means, comprising:

a detachable lens unit having nonvolatile storage means;

image sensing means for sensing an object image formed by said lens unit;

instruction means for instructing attachment/detachment of said lens unit; and

- 12 -

787474 v1

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

control means for controlling to permit detachment of said lens unit after information

pertaining to an operation state of said lens unit and/or user information are/is stored in said

nonvolatile storage means, when said instruction means outputs an instruction for detaching said

lens unit, and for reading out information pertaining to a use state of said lens unit and/or the user

information stored in said nonvolatile storage means and re-setting an operation state of said

image processing apparatus in accordance with the readout information, when said lens unit is

attached again.

61 (WITHDRAWN): The apparatus according to claim 60, wherein the operation state is an

image sensing mode of said image processing apparatus.

62 (WITHDRAWN): The apparatus according to claim 60, wherein the operation state is a focal

length setting value of a lens unit, a focal length of which can be changed.

63 (WITHDRAWN): A control method for an image processing apparatus which comprises a

detachable lens unit having nonvolatile storage means, image sensing means for sensing an

object image formed by said lens unit, and instruction means for instructing

attachment/detachment of said lens unit, comprising the step of:

permitting detachment of said lens unit after information pertaining to an operation state

of said lens unit and/or user information are/is stored in said nonvolatile storage means, when

said instruction means outputs an instruction for detaching said lens unit, and reading out

information pertaining to a use state of said lens unit and/or the user information stored in said

nonvolatile storage means and re-setting an operation state of said image processing apparatus in

- 13 -

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

accordance with the readout information, when said lens unit is attached again.

64 (WITHDRAWN): The method according to claim 63, wherein the operation state is an image

sensing mode of said image processing apparatus.

65 (WITHDRAWN): The method according to claim 63, wherein the operation state is a focal

length setting value of a lens unit, a focal length of which can be changed.

66 (WITHDRAWN): A storage medium that stores a control program for controlling an image

processing apparatus which comprises a detachable lens unit having nonvolatile storage means,

image sensing means for sensing an object image formed by said lens unit, and instruction means

for instructing attachment/detachment of said lens unit, said control program comprising a code

of the step of:

permitting detachment of said lens unit after information pertaining to an operation state

of said lens unit and/or user information are/is stored in said nonvolatile storage means, when

said instruction means outputs an instruction for detaching said lens unit, and reading out

information pertaining to a use state of said lens unit and/or the user information stored in said

nonvolatile storage means and re-setting an operation state of said image processing apparatus in

accordance with the readout information, when said lens unit is attached again.

67 (WITHDRWAN): The medium according to claim 66, wherein the operation state is an

image sensing mode of said image processing apparatus.

68 (WITHDRAWN): The medium according to claim 66, wherein the operation state is a focal

PATENT

Application Serial No. 09/265,070
Amendment dated August 5, 2003
Reply to Office Action of May 9, 2003
Docket No. 1232-4519

length setting value of a lens unit, a focal length of which can be changed.

69 (NEW): The apparatus according to claim 17, further comprising alerting means for alerting upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means.

70 (NEW): The method according to claim 31, further comprising the step of generating an alert upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means.

71 (NEW): The storage medium according to claim 45, wherein said control program further comprising the step of generating an alert upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means.

787474 v1